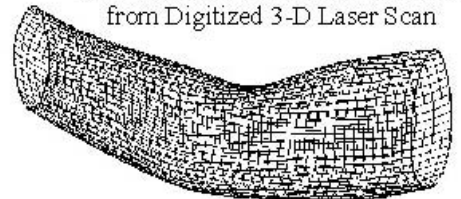# Computational Modeling for Protective Clothing

Overview:

Natick Soldier Center is developing computational models which are integrated with improved test methods. These models are used to assess the importance of coupled heat and mass transfer, combined convection/diffusion, liquid capillary transport, and concentration-dependent membrane diffusion. Realistic computational fluid dynamic models of the clothed human make it possible to directly examine the system consequences of various material properties or clothing design parameters (closures/fit).

Description:

- Creation of "virtual" human thermal/protective clothing model to complement existing manikin/human evaluations

- Computational models allow more freedom to examine:

  - System Designs

  - Relative Importance of Material Properties

  - Environmental Conditions (chemical and ambient environment)

Point of Contact:

Supporting Science & Technology Liaison
COMM (508) 233-4478, DSN 256-4478
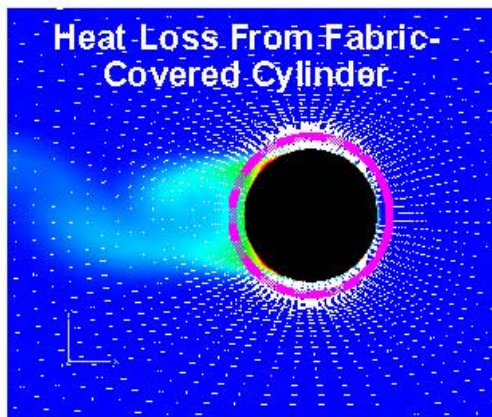E-MAIL amssb-rss@natick.army.mil

Body Surface Coordinates Obtained from Digitized 3-D Laser Scan
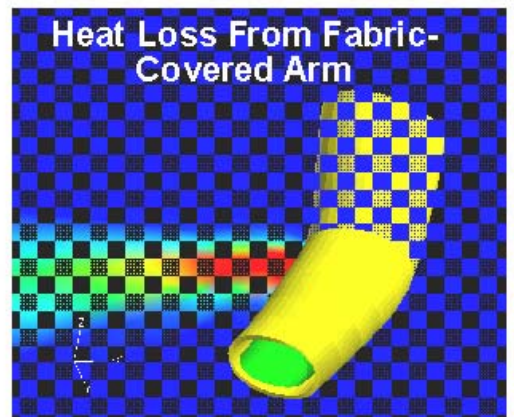

Flow Computation for Arm in Cross Flow Conditions

Heat Loss From Fabric-Covered Cylinder

Heat Loss From Fabric-Covered Arm

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